PATENT SPECIFICATION

714,021

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COMPLETE SPECIFICATION

Food and Beverage Blender

We, THE WINSTED HARDWARE MANUFACTURING COMPANY, Winsted, Connecticut, United States of America, a Corporation of the State of Connecticut, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates in general to improvements in food and beverage mixers, disintegrators or blenders.

Mixing devices of the above character generally comprise a portable base shell presenting an upper seat for removably receiving a jar or container provided with rotary blades at its bottom interior for agitating the ingredients and a relatively high speed motor carried within the shell with its drive shaft projecting upwardly for operative engagement with the driven shaft of the blades. It is highly important for the durable and efficient operation of such devices that the drive and driven shafts be in accurate registry and, to this end, it is necessary that the jar retaining elements and the motor shaft be maintained in proper relationship so that when the jar is seated the two shafts will be in accurate alignment. Heretofore, this relationship has been difficult constantly to maintain because in poor constructions the base shell independently carries the motor and the jar retaining elements so that there is a greater likelihood of relative displacement than if the motor and seating elements were directly connected. Also, in these prior constructions wherein the motor is suspended from or otherwise supported by the shell, the shell must necessarily be of sturdy and rigid material thus increasing the weight and cost of the device.

It is accordingly an object of the present invention to avoid the foregoing and other disadvantages of prior devices and to provide a novel arrangement of parts wherein the motor is utilised as the primary supporting element instead of the surrounding shell and wherein the motor provides a support for the shell instead of being supported by the shell as heretofore. The invention also proposes that the motor provide a support for the jar retaining elements so that these elements may be carried directly by the motor to insure accurate registry with the motor shaft instead of being independently carried by the shell as in prior constructions.

Another object of the invention is greatly to reduce manufacturing and assembly costs by providing a device having a minimum number of parts which may be very quickly and easily assembled both initially and for purpose of repairs. Concommitantly with the foregoing, it is a further object of the invention to provide an overall improved device having the advantage of increased durability, efficiency, convenience and attractive appearance.

According to the present invention, a base for an electrically driven food and beverage blender comprises an outer shell composed of separate upper and lower sections, an electric motor housed within said shell with its longitudinal axis vertically disposed, and securing means for said shell and motor arranged in substantially vertical alignment at the upper and lower portions of said shell.

Means may be included at the sidewall and one endwall portion of the shell to define spaces for circulatory air to cool the motor.

One of the said shell sections, e.g., the upper one, may overlap the other to provide a space between the overlap for circulatory air, separate means being carried by said lower shell section to define a space for circulatory air. Spaced means may be provided on the shell for intake and exhaust of the circulatory cooling air.

The base may comprise a drive shaft for the electric motor at one end thereof, an annular bracket in engagement with the drive shaft end of said motor and means carried by said annular bracket and extending ex-

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teriorly of the shell for retaining a food and beverage container coaxially of the drive shaft.

The electric motor is advantageously engageable with the rotary blade assembly of a food and beverage container, retaining members being carried by said electric motor for engagement with said container exteriorly of the shell to position the rotary blades assembly of the container in coaxial drive relationship with the motor. The retaining members for the blender container carried by the electric motor preferably extend equidistant radially outwardly of said drive shaft for positioning the container coaxially of the drive shaft. The retaining members may be carried by the upper one of annular brackets disposed at the upper and lower end portions of the motor and disposed radially equidistant from the axis of the motor, the brackets having central projecting members extended through central apertures in the upper and lower shell sections and including means engaging the projecting members to secure the shell sections, brackets, and motor together as a unit.

An example of construction of the invention is hereinafter particularly described with reference to the accompanying drawings, wherein:—

Fig. 1 is a front elevational view partly in section of a food and beverage blender base constructed in accordance with the invention, the food or beverage jar and blending blades being omitted since they form no part of the present invention.

Fig. 2 is a plan view of the lower housing shell shown in Fig. 1.

Fig. 3 is a bottom view of Fig. 2.

Fig. 4 is a plan view of the upper housing shell shown in Fig. 1.

Fig. 5 is a bottom view of Fig. 4.

Figs. 6, 7 and 8 are, respectively, vertical sectional, front elevational and plan views of the jar retainer elements shown in Fig. 1.

Fig. 9 is a plan view of the upper motor support bracket shown in Fig. 1.

Fig. 10 is a half-sectional view taken on the line 10—10 of Fig. 9.

Fig. 11 is a plan view of the lower motor support bracket shown in Fig. 1, and

Fig. 13 is a plan view of one of the bumper elements positioned between the upper and lower shells as shown in Fig. 1.

Referring more particularly to the drawings, wherein like numerals refer to like parts, the base indicated in its entirety at 10 in Fig. 1 is composed in its essentials of upper and lower shells 12 and 14, respectively, housing a conventional relatively high speed electric motor 16. For supporting the motor 16 within the shells 12 and 14, top and bottom annular brackets 18 and 20 are secured to the opposed end bells of the motor casing, the respective brackets having central threaded shank portions 22 and 24 projecting through apertures 23 and 25 disposed centrally of the end walls of the upper and lower shells 12 and 14, respectively. Suitable top and bottom washers 28 and 30 are preferably provided and retaining nuts 26 are in threaded engagement with the projecting shanks 22 and 24 to secure the shells 12 and 14 and the motor 16 together as a unit. The drive shaft of the motor 16, as shown, projects upwardly through the central wall opening 23 and carries a suitable annular slinger 31. There is thus provided a compact simple assembly from which the motor may be removed for repairs or replacement merely by unthreading one of the nuts 26.

Inasmuch as the upper and lower housing shells 12 and 14 function essentially as a decorative covering for the motor rather than a support for the motor as heretofore and are not subjected to any particular amount of stress or torque, they may be constructed of a variety of materials, preferably light in weight. Desirably, the shells 12 and 14 may be molded from synthetic resinous material or one or both of the shells may be formed of metal.

The lower shell 14, as best shown in Figs. 2 and 3, may have a convex or sloped bottom 32 and a series of integral substantially horizontal and upright ribs 34 converging toward the central opening 25 which receives the annular shank 24 of the motor support bracket 20. Disposed between the ribs are apertures 36 in the bottom wall for the exhaust of cooling air as will be hereinafter explained. Diverging upwardly and integral with the bottom wall 32 is an intermediate side wall portion 38 which preferably is provided with a stepped outer surface, as shown, and which terminates in an integral plain upright and cylindrical lip 40.

Supports for the shell 14 may be in the form of a plurality of legs or columns 42 disposed symmetrically around and integral with the bottom and intermediate side wall portions of the shell. The base ends of the legs 42 may be bored or recessed as at 44 frictionally to receive foot pads 46, suitably formed of rubber or other resilient friction material. The lip 40 is cut away above the legs to form slots having edges 48. The upper ends of the legs 42, as shown, terminate short of the lip portion 40 and together with the adjacent cut away edges 48 of the lip 40 form seats for frictionally receiving resilient bumper elements 50 as shown in detail in Fig. 13, which also may suitably be formed of rubber or other resilient material. The bumpers 50 are thus positioned for cushion contact with the upper shell 12 and the peripheral area extending between the bumpers provides an open space in the junction between the shells 12 and 14 for cooling air.

Preferably the usual motor fan is arranged to blow downwardly and this space is employed for the intake of air to be exhausted through the bottom apertures 36 after circulation over the casing of the motor 16. It will be apparent that the annular air intake space between the shells is positioned far enough above the bottom ports 36 and central opening 25 to avoid exhausted air passing out from the ports 36 and opening 25 being sucked in again and recirculated.

The upper shell 12, as best shown in Figs. 4 and 5, is provided with an upper crown portion 52 and an integral top wall 54 having symmetrically arranged apertures 56 for a purpose which will hereinafter appear and the central opening 23 which receives the annular shank 22 of the motor support bracket 18. The remainder of the shell 12 comprises an integral skirt 58 carrying integral interior upright ribs 60 which function not only to reinforce the shell but in a measure to direct the intake air toward the upper portion of the motor casing, the path of circulation then proceeding downwardly. As shown, certain of the ribs 60 may be shortened or omitted entirely at points of contact of the interior wall of the shell 12 with the bumper elements 50.

In lieu of projecting the usual motor control switch from the side wall of the base in the common manner where the switch is often accidentally actuated upon contact with other adjoining objects, it has been found that the switch may be more safely and conveniently disposed on the crown portion 52 of the shell 12 which, as shown, is set back from the outer skirt or side wall 58. To this end, an aperture 62 is provided in the sloped wall of the portion 52 for reception of a suitable switch, the structure of which otherwise may be conventional and which is not therefore shown in detail. We have also found it convenient and desirable at this point slightly to recess the surrounding exterior wall portions of the crown 52 and the skirt 58 as shown at 64 for the reception of a combined name plate and switch base or the like 66.

The motor support upper bracket 18, shown in detail in Figs. 9 and 10, may, if desired, be in the form of a metal stamping having a plurality of radially distributed apertures 68 for receiving rivets or the like 70 whereby to secure the bracket to the top end bell of motor 16. As shown in Fig. 1, the rivets 70 spacedly mount the bracket 18 to provide for circulation of air over the top end bell of the motor. The upper motor bracket 18 carries at equi-spaced peripheral points of plurality of integral upright rigid fingers 72, one for each of the apertures 56 of the upper shell 12, ribs 74 being preferably provided at the junction of the fingers 72 with the peripheral edge of the bracket 18. Cut-out finger openings 76 may be provided to facilitate placement and removal of the bracket with respect to the motor.

As shown in Fig. 1, the projecting fingers 72 function accurately to position the jar seat defining and retaining members 78 in the shell apertures 56 so as to insure correct positioning of the jar (not shown) coaxially of the drive shaft of motor 16. These retaining members 78, as best shown in Figs. 6-8, are provided each with a longitudinal bore or upright internal slot 80 for frictionally receiving a finger 72 and an internal flange 81 to bear against the finger 72. Externally, each member 78 is provided with a slightly tapering face 82 for guiding the jar, an intermediate ledge portion 84 upon which the bottom of the jar may rest and an extended base portion 86 for positioning between the opposed face portions of the top shell wall 54 and the bracket 18 and compression therein when the upper nut 26 is tightened. It will thus be apparent that the jar retaining elements 78 are secured directly to the motor through the medium of bracket 18 and merely project through the upper shell 12 to which they are not otherwise secured.

The lower motor support bracket 20, as shown in detail in Figs. 11 and 12, may also be a metal stamping similarly having a plurality of radially distributed 88 for receiving rivets or the like 90 whereby to secure the bracket to the bottom end bell of motor 16. As shown in Fig. 1, the rivets 90 spacedly mount the bracket 20 to provide for circulation of air over the bottom end bell of the motor and the elevated spaced ribs 39 upon which the bracket 20 rests provides a communicating path between the interior of the assembled shells 12 and 14 and the openings 25 and 36 in the lower shell 14. Ordinarily, the lower retaining nut 26 in threaded engagement with the projecting central shank 24 will be sufficient to secure the lower shell 14 to the bracket 20, but, if desired, the bracket may be provided with holes 92 to receive self tapping screws further to secure the shell to the bracket.

What we claim is:—

1. A base for an electrically driven food and beverage blender comprising an outer shell composed of separate upper and lower sections, an electric motor housed within said shell with its longitudinal axis vertically disposed and securing means for said shell and motor arranged in substantially vertical alignment at the upper and lower portions of said shell.

2. A base for an electrically driven food and beverage blender, as claimed in Claim 1, including separate means at the sidewall and one endwall portions of said shell defining spaces for circulatory air to cool said motor.

3. A base for an electrically driven food and beverage blender, as claimed in either of Claims 1 and 2, wherein one of said shell sections overlaps the other to provide a space between said overlap for circulatory air, separate means being carried by said lower shell section to define a space for circulatory air.

4. A base for an electrically driven food and beverage blender, as claimed in any one of Claims 1 to 3, wherein the upper shell section overlaps the lower shell section.

5. A base for an electrically driven food and beverage blender, as claimed in any one of the preceding claims, including spaced means provided on said shell for intake and exhaust of circulatory cooling air.

6. A base for an electrically driven food and beverage blender, as claimed in any one of the preceding claims, comprising a drive shaft for the electric motor at one end thereof, an annular bracket in engagement with the drive shaft end of said motor and means carried by said annular bracket and extending exteriorly of said shell for retaining a food and beverage container coaxially of said drive shaft.

7. A base for an electrically driven food and beverage blender, as claimed in any one of Claims 1 to 5, wherein the electric motor is engageable with the rotary blade assembly of a food and beverage container, retaining members being carried by said electric motor for engagement with said container exteriorly of said shell to position the rotary blade assembly of the container in coaxial drive relationship with said motor.

8. A base for an electrically driven food and beverage blender, as claimed in Claim 7, wherein the retaining members for the blender container carried by said electric motor extend equidistant radially outwardly of said drive shaft for positioning said container coaxially of said drive shaft.

9. A base for an electrically driven food and beverage blender, as claimed in either of Claims 7 or 8, wherein the retaining members are carried by the upper one of annular brackets disposed at the upper and lower end portions of said motor and are disposed radially equidistant from the axis of the motor, the said brackets having central projecting members extended through central apertures in said upper and lower shell sections and including means engaging said projecting members to secure said shell sections, brackets and motor together as a unit.

10. A base for an electrically driven food and beverage blender, as claimed in any one of the preceding claims, in combination with a container having a rotary mixing blade and a wall aperture for reception of a blade drive shaft, the electric motor having means positioned thereon removably to retain said container with its wall aperture in coaxial relationship with said motor drive.

11. A base for an electrically driven food and beverage blender constructed and arranged as particularly described with reference to the figures of the accompanying drawing.

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Fig-1-

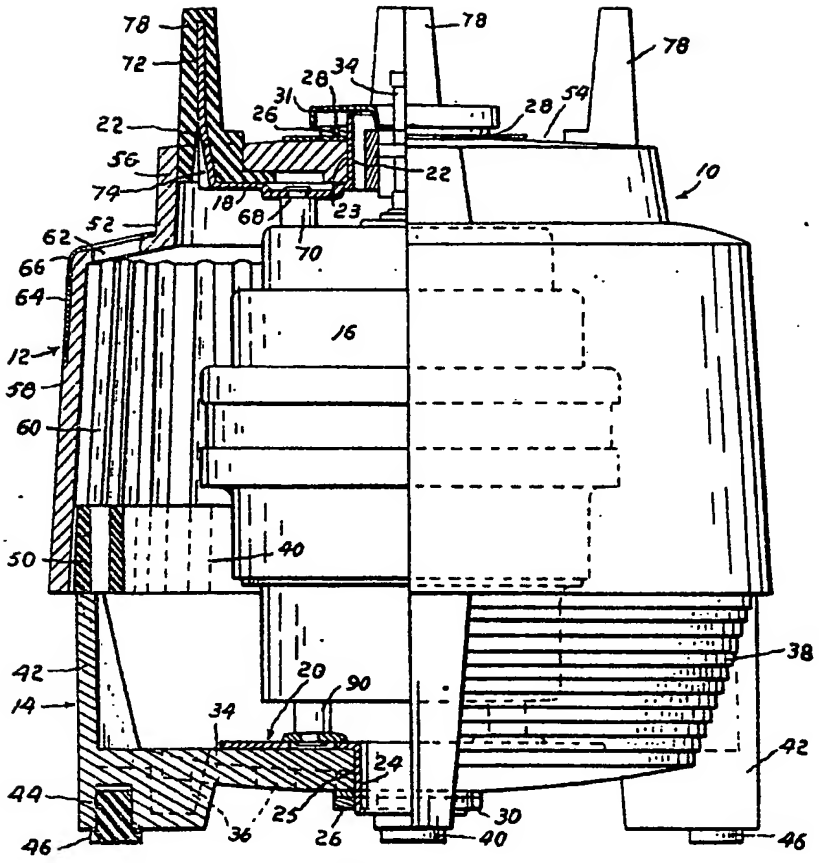
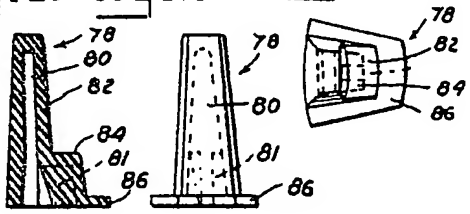


Fig-6. Fig-7. Fig-8.



714,021 COMPLETE SPECIFICATION

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SHEETS 1 & 2

Fig. 2.

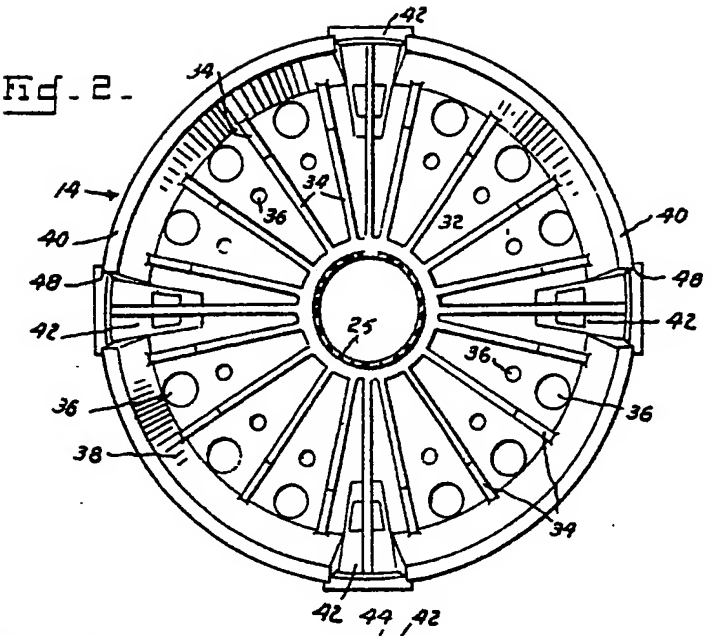
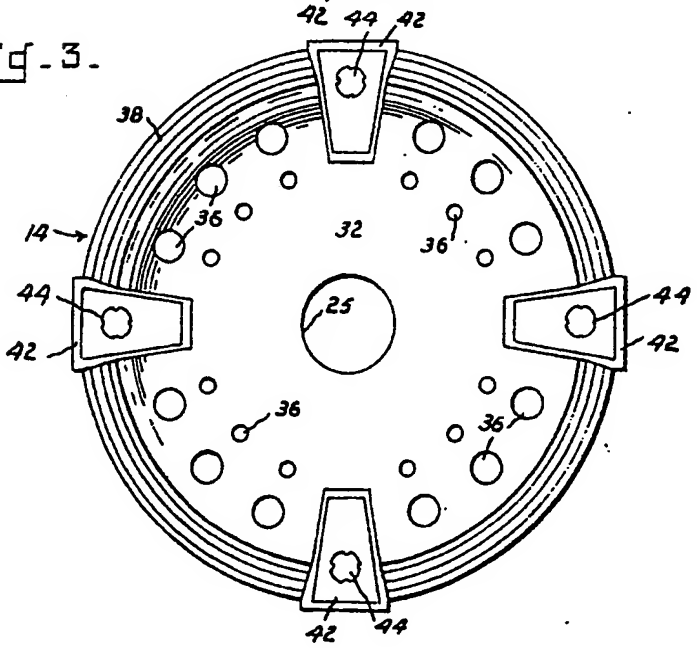


Fig. 3.



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SHEETS 1 & 2

Fig.1.

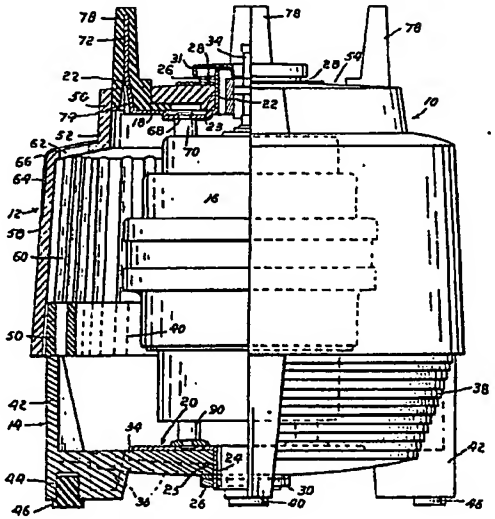


Fig.2.

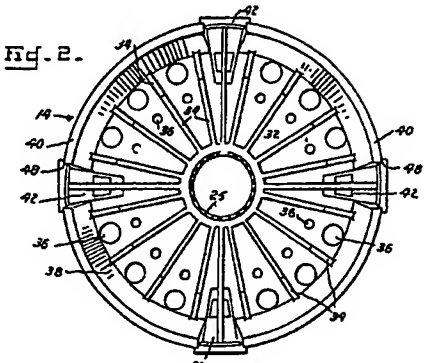


Fig.3.

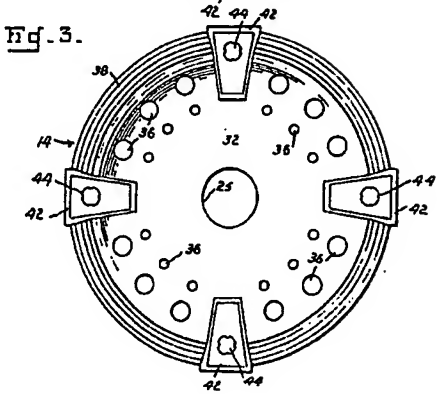


Fig.6. Fig.7. Fig.8.

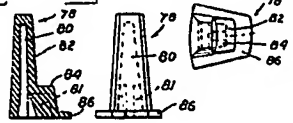


Fig .4.

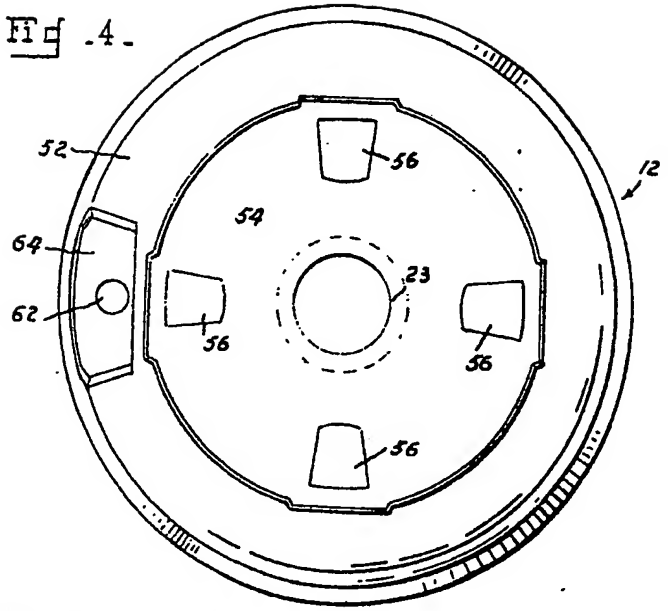
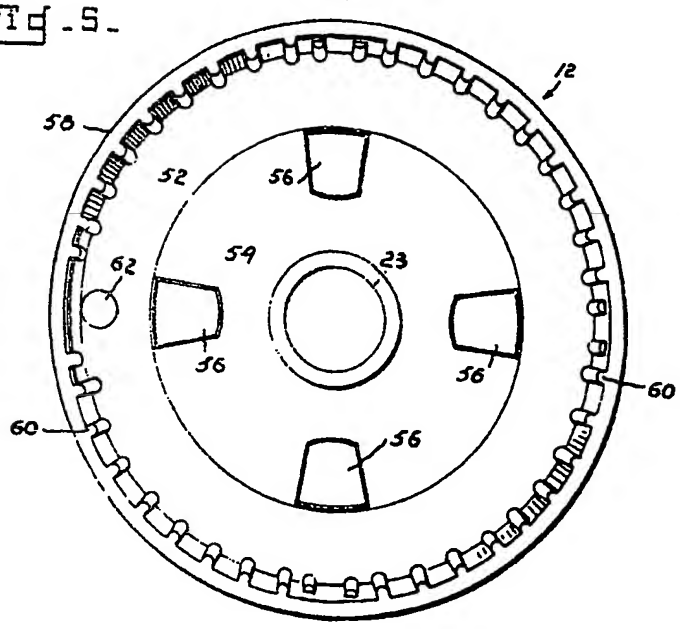


Fig .5.



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SHEETS 3 & 4

Fig. 9.

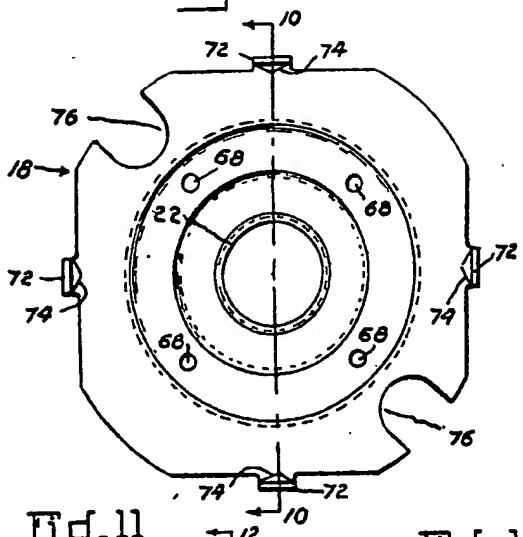

Fig. 10.

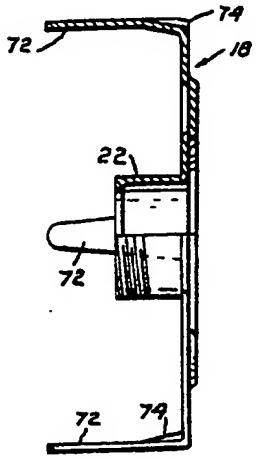

Fig. 11

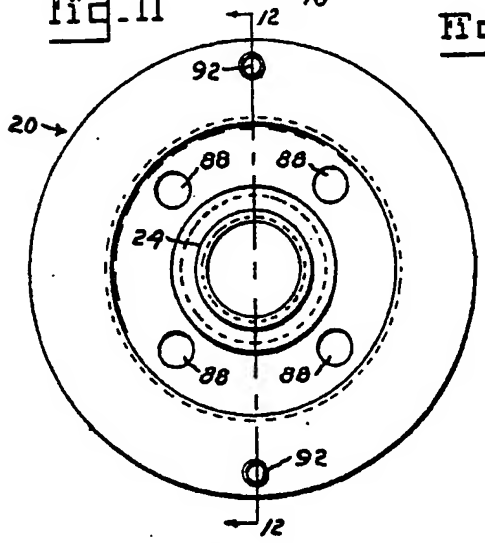

Fig. 12.

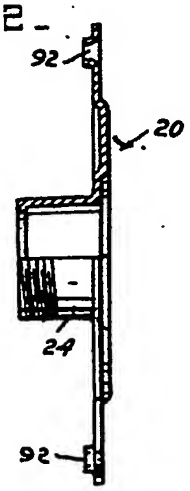

Fig. 13.

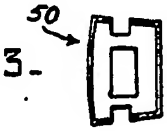

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Fig.4.

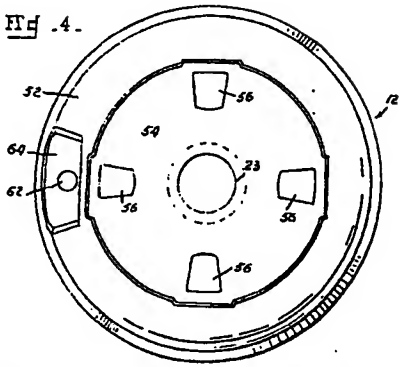

Fig.5.

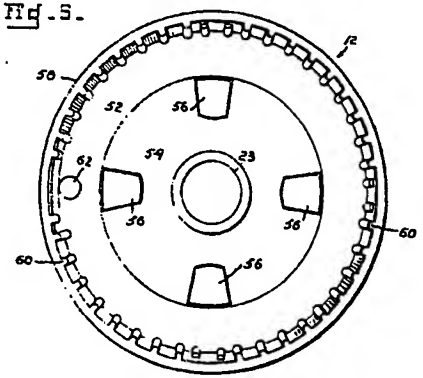

Fig.9.

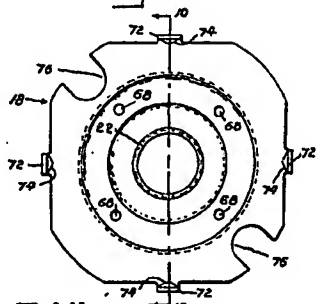

Fig.10.

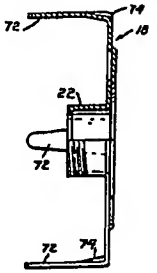

Fig.11

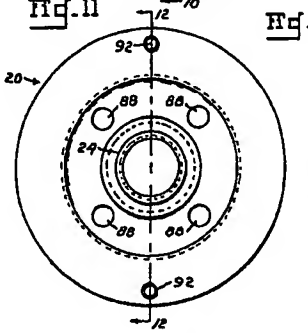

Fig.12.

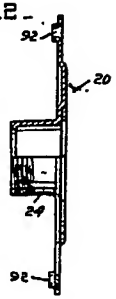

Fig.13.